AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method in a communications device for transmitting packets, the method comprising:

receiving packets including control packets and data packets, the control packets being one of a status control packet and a command control packet;

storing the received packets in a memory of the communications device;

when the stored packets include a control packet and a data packet, the control packets being stored in a first control packet portion of the memory and the data packets being stored in a second data packet portion of memory different from the first control packet portion of memory,

determining what stored packet to select according to a selection rule specifying that: (i) a data packet is selected from the data packet portion of the memory only when the control packet portion of the memory is empty unless the next data packet has been delayed more than a certain amount of time, and wherein determining whether the data packet has been delayed more than a certain amount of time includes:[[;]]

when it is determined that the data packet has been delayed more than the certain amount of time, selecting the data packet; and

when it is determined that the data packet has not been delayed more than the certain amount of time, selecting the control packet;

retrieving the selected packet from memory of the communications device; and

transmitting the retrieved packet.

Cancel Claim 2 without prejudice.

2. (Cancelled)

3. (Currently Amended) The method of claim 1[[2]] wherein each portion for storing data packets and separate portion for storing control packets ~~portion~~ of the memory is a FIFO buffer.

4. (Currently Amended) The method of claim 3[[1]] wherein the communications device has multiple ports and the selecting of the packet is performed for packets to be transmitted via the same port.

5. (Original) The method of claim 1 wherein the packets with a packet type of control include command packets.

6. (Original) The method of claim 1 wherein the packets with a packet type of control include status packets.

7. (Original) The method of claim 1 wherein the packets with a packet type of control include message packets.

8. (Original) The method of claim 1 including:

while transmitting a data packet,

receiving a control packet;

interrupting the transmission of the data packet;

transmitting the control packet; and

after the control packet is transmitted, continuing with the interrupted transmission of the data packet.

9. (Original) The method of claim 8 wherein each packet has a header and the continuing includes transmitting a header corresponding to the interrupted portion of the data packet.

10. (Original) The method of claim 8 wherein each packet has a header and the continuing includes transmitting the remainder of the data packet without transmitting a new header.

11. (Original) The method of claim 8 wherein the interrupting of the transmission includes transmitting a preempt primitive and wherein the continuing with the interrupted transmission includes transmitting a continue primitive.

12. (Original) The method of claim 1 wherein the communications device is a switch that connects host devices to data store devices.

13. (Original) The method of claim 1 wherein the communications device is part of a storage area network.

14. (Original) The method of claim 1 wherein the selecting includes selecting control packets before selecting data packets.

15. (Original) The method of claim 1 wherein the selecting includes applying a selection algorithm that gives preference to selecting control packets over data packets.

16. (Currently Amended) A method in a communications device for transmitting packets, the method comprising:

receiving packets in an order, each packet being a ~~first~~ data packet type or a ~~second~~ control packet type, the control packet type being selected from one of a status control packet and a command control packet;

storing the control packets in a first control packet portion of a memory and storing the data packets in a second data packet portion of the memory different from the first control packet portion of the memory; and

retrieving from the memory and transmitting the received stored and retrieved packets in an order that is different from the order in which the packets were received based on whether the packets are a ~~first~~ data packet type or a ~~second~~ control packet type, ~~unless the transmitting of a packet in the different order would delay the transmitting of a packet more than a certain amount of time.~~ and retrieving and transmitting packets only from the data packet portion of the memory when the control packet portion of the memory is empty.

Cancel Claims 17-19 without prejudice.

17. - 19. (Cancelled)

20. (Original) The method of claim 16 wherein the communications device has multiple ports and wherein the received packets are transmitted via the same port.

21. (Original) The method of claim 20 wherein the packets are received via a single port.

22. (Original) The method of claim 20 wherein the packets are received via different ports.

23. (Original) The method of claim 16 wherein the communications device is a switch that connects host devices to data storage devices.

24. (Original) The method of claim 16 wherein the communications device is part of a storage area network.

25. (Currently Amended) A communications device comprising:

a packet memory configured for separately storing a plurality of packet types including a control packet type and a data packet type;

a receive component that receives packets and stores the received packets in the memory, each packet being a control packet or a data packet, wherein control packets are stored in a control packet queue in a control packet memory portion defined in the memory and data packets are stored in a data packet queue in a data packet memory portion that is different from the control packet memory portion defined in the memory; and

a transmit component that retrieves the packets from the memory, wherein the retrieving is associated with a selection algorithm that if each control packet queue and data packet queue contains a packet the selection algorithm selects only a control packet for retrieval unless a certain condition is satisfied in which case the selection algorithm selects a data packet for retrieval and that transmits the retrieved packets in order of retrieval.

26. (Previously presented) The communications device of claim 25, wherein the condition is satisfied when the selection of a control packet would delay the transmitting of a data packet more than a certain amount of time.

27. (Original) The communications device of claim 26 wherein each portion of the memory is a FIFO buffer.

28. (Original) The communications device of claim 25 including multiple ports, each with a transmit component.

29. (Original) The communications device of claim 25 wherein the transmit component interrupts transmitting of a data packet to transmit a control packet.

30. (Original) The communications device of claim 29 wherein transmitting of the interrupted data packet continues after the control packet is transmitted.

31. (Original) The communications device of claim 30 wherein the interrupting of the transmitting includes transmitting a preempt primitive and wherein the continuing with the interrupted data packet includes transmitting a continue primitive.

32. (Original) The communications device of claim 25 wherein the communications device is a switch that connects host devices to data store devices.

33. (Original) The communications device of claim 25 wherein the communications device is part of a storage area network.

34. (Original) The communications device of claim 25 wherein control packets are retrieved before data packets.

35. (Original) The communications device of claim 25 wherein packets are retrieved based on a retrieval algorithm that gives preference to retrieving control packets over data packets.

36. - 43. (Canceled)

Add new claims 44- 62 as follows:

44. (New) The method of claim 1, wherein: selection and transmission of the control packets before data packets ensures that typically smaller control packets are not delayed more than a period of time by typically larger data packets.

45. (New) The method of claim 1, wherein: the control packet is selected from a command packet and a status packet.

46. (New) The method of claim 1, wherein: the control packet is selected from a command packet, a status packet, and a message packet.

47. (New) The method of claim 1, wherein: the control packet is smaller than the data packet.

48. (New) The method of claim 1, wherein: the data packets have a size that is larger than a size of the control packets, and the selecting of the control packets before the data packets ensure that the control packets are not delayed more than the certain amount of time by the larger data packets.

49. (New) The method of claim 1, wherein: the selected control packet comprises a command packet requesting a read from a data store device that was transmitted before a data packet even through the control packet was received after the data packet, and wherein the data store device receiving the command packet starts processing the read request without having to wait until the data packet is transmitted.

50. (New) The method of claim 1, wherein: the control packets and data packets are stored in separate areas of the memory and packets are selected only from the data packet memory area when the control packet memory area is empty.

51. (New) The method of claim 1, wherein: a data packet that has been in the data memory area of the packet memory for certain amount of time is selected even though there is a control packet in the control memory area so that a sequence of many control packets will not delay the data packet more than that certain amount of time.

52. (New) The method of claim 1, wherein: the control packet is selected as one of a status control packet and a command control packet, and the status control packet is transmitted before a command packet, and both status control packet and command control packets are selected before a data packet.

53. (New) The method of claim 1, wherein: the method further comprising after beginning the transmitting of the selected and retrieved packet, preempting or interrupting the transmission of a data packet when a control packet with a higher priority is to be transmitted on the same communications link.

54. (New) The method of claim 1, wherein the preempting or interrupting of transmission of a data packet further comprising: (i) stopping a transport layer of a communications node from providing codes of the data packet to a link layer; (ii) signaling the link layer to transmit a preempt primitive; and (iii) starting providing the code of the control packet to the link layer for transmission as a preempting packet.

55. (New) The method of claim 1, further comprising:

after the preempting packet has been completely transmitted, the transport layer of the communications node signaling the link layer to transmit a continue primitive and then resuming providing the remainder of the codes of the data packet to the link layer; and wherein:

the link layer of a receiving communications node detecting the preempt primitive while it is receiving the codes of the data packet and signaling its transport layer;

the transport layer then starting to store the subsequent codes as a control packet;

the link layer detecting the continue primitive and signaling the transport layer, which continues receiving the preempted data packet; and

the preempt and continue primitives, which are control primitives, serve to delimit transmission of a preempting packet.

56. (New) The method of claim 55, further comprising: permitting a status control packet to preempt a command control packet that already preempted a data packet.

57. (New) The communications device in claim 25, wherein the packet memory further comprises:

a control queue including a plurality of control packet FIFO storage elements each for storing a received control packet, the control queue having a control queue input port and a control queue output port;

a data queue including a plurality of data packet FIFO storage elements each for storing a received data packet, the data queue having a data queue input port and a data queue output port, the data queue being defined in a different portion of the packet memory from the control queue;

the received packets being stored either in the control queue or in the data queue based on the packet being a control packet type or a data packet type, and wherein the packet type is encoded in a synchronization primitive or a type field in a packet header accompanying the packet; and

memory control means for selecting either a data packet or a control packet and directing a selected control packet to the control queue output port and directing a selected data packet to the data queue output port.

58. (New) The communications device in claim 25, wherein the selection algorithm selects packets only from the data packet portion of the memory when the control packet portion of the memory is empty and otherwise selects only the control packets.

59. (New) A packet memory device comprising:

a control queue including a plurality of control packet FIFO storage elements each for storing a received control packet, the control queue having a control queue input port and a control queue output port;

a data queue including a plurality of data packet FIFO storage elements each for storing a received data packet, the data queue having a data queue input port and a data queue output port, the data queue being defined in a different portion of the packet memory from the control queue;

the received packets being stored either in the control queue or in the data queue based on the packet being a control packet type or a data packet type, and wherein the packet type is encoded in a synchronization primitive or a type field in a packet header accompanying the packet; and

memory control means for selecting either a data packet or a control packet and directing a selected control packet to the control queue output port and directing a selected data packet to the data queue output port.

60. (New) The packet memory of claim 51, wherein when a transmitting communications node is ready to transmit the next packet, it retrieves the next packet from the control queue; and if the control queue is empty, then the transmitting communications node retrieves the next packet from the data queue.

61. (New) The method of claim 1, wherein the communications device is for transmitting control packets and data packets to a storage device in a storage area network;

the received data packets include data to be written to the storage device of the storage area network; and

the control packets indicate a request for data to be read from the storage device of the storage area network.

62. (New) A communications device comprising:

packet memory means configured for separately storing a plurality of different packet types;

receive means for receiving packets and storing the received packets in the memory, each packet being a control packet or a data packet, wherein control packets are stored in a control packet queue in a control packet memory portion defined in the memory and data packets are stored in a data packet queue in a data packet memory portion that is different from the control packet memory portion defined in the memory; and

transmit means for retrieving the packets from the memory, wherein the retrieving is associated with a selection algorithm that if each control packet queue and data packet queue contains a packet the selection algorithm selects only a control packet for retrieval unless a certain condition is satisfied in which case the selection algorithm selects a data packet for retrieval and that transmits the retrieved packets in order of retrieval.